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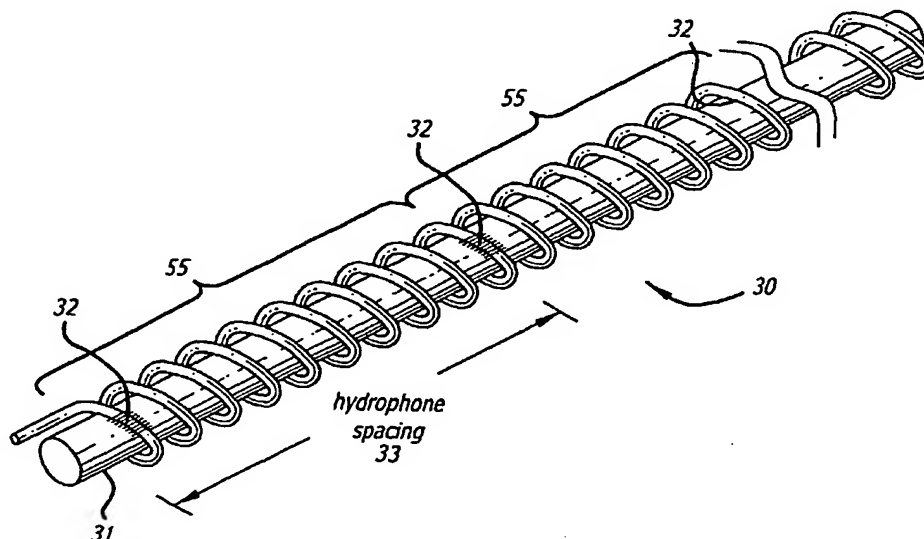
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[Continued on next page]

(54) Title: **RUGGED FIBER OPTIC ARRAY**



(57) Abstract: An array of fiber optic hydrophones (30) is formed by winding of optical fiber around a continuous, yet flexible cylindrical core (31). The cylindrical core contains an elastomer filled with a specified percentage of voided plastic microspheres. The elastomer provides the necessary radial support of the optical fiber and with the included voided microspheres, provides sufficient radial compliance under acoustic pressure. The cylindrical core can be made in very long sections allowing a plurality of hydrophones to be wound onto it using a single optical fiber, with individual hydrophone elements separated by internal reflectors such as Fiber Bragg Gratings (32). The center of the core may include a strength member and a central hollow tube for the passing of additional optical fibers. The aforementioned hydrophone array is then packaged within a protective outer coating or coatings as required for the specified application.

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Published:

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/31266

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G02B 6/00

US CL : 385/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 385/12, 13, 103, 104, 108

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,211,964 B1 (LUSCOMBE et al) 03 April 2001 (03.04.2001), abstract, Column 3, line3 - Column 8, line 17, figures 4A and 5A	1-39
X	US 4,468,091 A (SCHMADEL et al) 28 August 1984 (28.08.1984), Abstract, Figure 10, Column 2, lines 65-68, Column 7, lines 25-28, Column 8, lines 29-32	1, 8-14, 22-23
A	US 4,444,460 A (STOWE) 24 April 1984 (24.04.1984), Figure 12	14-15

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:

USPTO "EAST" searched

Search terms: acoustic, sensor, optical, fiber, grating